

Doc. 300.1.2

Date: April 24, 2020

Higher Education Institution's Response

- Higher Education Institution: **University of Cyprus**
- Town: **Nicosia**
- School/Faculty (if applicable): **School of Pure and Applied Sciences**
- Department/ Sector: **Mathematics and Statistics**
- Programme of study- Name (Duration, ECTS, Cycle)
- In Greek: **Τμήμα Μαθηματικών και Στατιστικής**
- In English: **BSc in Mathematics and Statistics (4 years, 240 ECTS)**
- Language(s) of instruction: **Greek**
- Programme's status:
- New programme: **No**
- Currently operating: **Yes**

The present document has been prepared within the framework of the authority and competencies of the Cyprus Agency of Quality Assurance and Accreditation in Higher Education, according to the provisions of the “Quality Assurance and Accreditation of Higher Education and the Establishment and Operation of an Agency on Related Matters Laws of 2015 to 2019” [N. 136 (I)/2015 to N. 35(I)/2019].

A. Guidelines on content and structure of the report

- The Higher Education Institution (HEI) based on the External Evaluation Committee's (EEC's) evaluation report (Doc.300.1.1) must justify whether actions have been taken in improving the quality of the programme of study in each assessment area.
- In particular, under each assessment area, the HEI must respond on, without changing the format of the report:
 - the findings, strengths, areas of improvement and recommendations of the EEC
 - the deficiencies noted under the quality indicators (criteria)
 - the conclusions and final remarks noted by the EEC
- The HEI's response must follow below the EEC's comments, which must be accompanied by the external evaluation report (Doc.300.1.1).
- In case of annexes, those should be attached and sent on a separate document.

1. Study programme and study programme's design and development

(ESG 1.1, 1.2, 1.8, 1.9)

| Quality indicators/criteria | | 1 - 5 |
|-----------------------------|--|-------|
| 1. | Study programme and study programme's design and development | |
| 1.1 | Academic oversight of the programme design is ensured. | 5 |
| 1.2 | The guide and / or the regulations for quality assurance provide the adequate information and data for the support and management of the programme of study for all the years of study. | 5 |
| 1.3 | Internal Quality Assurance processes safeguard the quality and the fulfillment of the programme's purpose, objectives and the achievement of the learning outcomes. Particularly, the following are taken into consideration: | |
| 1.3.1 | The disclosure of the programme's curricula to the students and their implementation by the teaching staff | 5 |
| 1.3.2 | The programme webpage information and material | 5 |
| 1.3.3 | The procedures for the fulfillment of undergraduate and postgraduate assignments / practical training | 5 |
| 1.3.4 | The procedures for the conduct and the format of the examinations and for student assessment | 5 |
| 1.3.5 | Students' participation procedures for the improvement of the programme and of the educational process | 5 |
| 1.4 | The knowledge (theoretical and/or factual) gained is of the appropriate level to which the programme of study corresponds to, according to the European Qualifications Framework (EQF). | 5 |
| 1.5 | The skills (cognitive and practical) obtained are of the appropriate level to which the programme of study corresponds to, according to the European Qualifications Framework (EQF). | 5 |
| 1.6 | The responsibility and autonomy (the ability of the learner to apply knowledge and skills autonomously and with responsibility) are of the appropriate level to which the programme of study corresponds to, according to the European Qualifications Framework (EQF). | 5 |
| 1.7 | The purpose and objectives of the programme are consistent with the expected learning outcomes and with the mission and the strategy of the institution. | 5 |
| 1.8 | The following ensure the achievement of the programme's purpose, objectives and the learning outcomes: | |

| | | |
|--------------|--|---|
| 1.8.1 | The number of courses | 5 |
| 1.8.2 | The programme's content | 5 |
| 1.8.3 | The methods of assessment | 5 |
| 1.8.4 | The teaching material | 5 |
| 1.8.5 | The equipment | 5 |
| 1.8.6 | The balance between theory and practice | 4 |
| 1.8.7 | The research orientation of the programme | 4 |
| 1.8.8 | The quality of students' assignments | 5 |
| 1.9 | The expected learning outcomes of the programme are known to the students and to the members of the teaching staff. | 5 |
| 1.10 | The teaching and learning process is adequate and effective for the achievement of the expected learning outcomes. | 5 |
| 1.11 | The content of the programme's courses reflects the latest achievements / developments in science, arts, research and technology. | 5 |
| 1.12 | New research results are embodied in the content of the programme of study. | 4 |
| 1.13 | The content of foundation courses is designed to prepare the students for the first year of their chosen undergraduate degree. | 5 |
| 1.14 | Students' command of the language of instruction is appropriate. | 5 |
| 1.15 | The programme of study is structured in a consistent manner and in sequence, so that concepts operating as preconditions precede the teaching of other, more complex and cognitively more demanding, concepts. | 5 |
| 1.16 | The learning outcomes and the content of the courses are consistent. | 4 |
| 1.17 | The European Credit Transfer System (ECTS) is applied and there is correspondence between credits, workload and expected learning outcomes per course and per semester. | 5 |
| 1.18 | The higher education qualification awarded to the students corresponds to the purpose, objectives and the learning outcomes of the programme. | 5 |

| | | |
|------|---|---|
| 1.19 | The higher education qualification and the programme of study conform to the provisions for registration to their corresponding professional and vocational bodies for the purpose of exercising a particular profession. | 5 |
| 1.20 | The programme's management in regard to its design, its approval, its monitoring and its review, is in place. | 5 |
| 1.21 | The programme's collaborations with other institutions provide added value and are compared positively with corresponding collaborations of other departments / programmes of study in Europe and internationally. | 5 |
| 1.22 | Procedures are applied so that the programme conforms to the scientific and professional activities of the graduates. | 4 |
| 1.23 | The admission requirements are appropriate. | 5 |
| 1.24 | Sufficient information relating to the programme of study is posted publicly. | 5 |
| 1.25 | The teaching methodology is suitable for teaching in higher education. | 4 |

1.8.6/1.8.7: The opportunities for students to have research experiences and be involved in research are limited and not an integrated part of the program. There are some opportunities for internships which are clearly appreciated by the students. Overall, the integration of research and teaching could be improved. There are electives that offer some of these opportunities, but their use and integration is less clear.

Response:

Following the recommendations of the EEC the Departmental Council has taken the following steps:

- To strengthen and encourage students to seek internship opportunities. One ECTS will be credited for each month of employment (up to three months). These ECTS will be counted towards the total 240 ECTS required for graduation. In contrast, in the previous programme these ECTS were credited over and above the 240 required ECTS.
- Summer research opportunities will be available for undergraduate students, within the department, during the Summer Session. The department will be offering up to 10 monthly research fellowships of 500 euros each. To initiate the program a list of 4-5 projects will be offered to students in the summers of 2020-2021 and the program will be reevaluated and possibly expanded depending upon the response of the students.
- Research projects will be also be part of the formal assessment of student performance in a series of elective courses. In particular, the Department has decided that the evaluation of students at all fourth year elective courses (MAS4XX) will be based on at least three different criteria including: a final examination, research projects, presentations and homework. In contrast university regulations require at least only two different criteria.
- During the last two semesters of his/her studies a student can undertake an Individual Diploma Project which corresponds to 14 ECTS (7+7).

1.12: *For advanced level classes, there could be an better integration of current research into content. There are many opportunities for better integration with related topics, in particular with computer science and the applied sciences.*

Response:

To develop further research skills, students will be allowed to take up to 14 ECTS from a specific list of courses from the Computer Science, Physics, Engineering and Economics/Finance Departments appropriately selected in order to blend the theoretical foundation of our students with specific applications in these fields. The list has been included in the revised programme of studies. In addition to these courses, we note that according to university regulations, students are already required to take 3-5 courses from three different schools of the university.

List of Courses from other Departments:

Department of Business and Public Administration

- BPA444-Social Networks and Business
- BPA446-Business Analysis: Predictive Models

Department of Computer Science

- CS231-Data Structures and Algorithms
- CS236-Algorithms and Complexity
- CS445-Digital Image Processing

Department of Electrical and Computer Engineering

- ECE220-Signal and Systems I
- ECE320-Signal and Systems II
- ECE326- Dynamical Systems and Control

Department of Mechanical and Manufacturing Engineering

- MME216-Fluid Mechanics I
- MME217-Heat Transfer
- MME418-Compressible Flow

Department of Physics

- PHY225- Quantum Mechanics I
- PHY405- Cosmology and General Theory of Relativity

1.16: Lack of consistency of the use of learning outcomes and the link between content and achieving the learning outcomes. It should be emphasized that there are many good examples of the use of learning outcomes but this varies substantially across the course offerings.

Response:

The learning outcomes have been revised in the following courses:

- MAS 222 Number Theory
- MAS 261 Probability I
- MAS 262 Statistics I
- MAS 302 Complex variables I
- MAS 303 Partial Differential Equations
- MAS 321 Introduction to Algebra
- MAS 350 Stochastic Processes
- MAS 361 Probability II
- MAS 362 Statistics II
- MAS 401 Measure Theory and Integration
- MAS 402 Complex variables II
- MAS 403 Ordinary Differential Equations II
- MAS 418 An Introduction to Fourier Analysis
- MAS 433 Topology
- MAS 434 Introduction to Algebraic Topology
- MAS 439 Introduction to Algebraic Geometry
- MAS 456 Time Series
- MAS 459 Multivariate Analysis

1.22: There needs to be a higher level of awareness of the destination of their graduates, in particular as the majority of students will be seeking a non-academic career.

Response:

The Department acknowledges the importance of job opportunities for its graduates and therefore, it aims to keep itself updated about the trends of the job market and the careers of its graduates. The following are some of the activities that the department is involved in or has recently initiated to deal with this issue.

- To develop further research and professional skills, students will be encouraged to take up to 14 ECTS from a specific list of courses from the Computer Science, Physics, Engineering and Economics/Finance Departments appropriately selected in order to blend the theoretical foundation of our students with specific applications in these fields. The list has been included in the revised programme of studies.

- The University of Cyprus Career Fair takes place once a year on campus and brings together companies seeking qualified employees and our students. Representatives from our department are always present in such expositions and remain alert of the needs of the job market. There is also a presentation from our department emphasizing the skills of our graduates and their ability to be employed at a plethora of jobs, due to their analytical thinking and problem-solving skills obtained during the course of their studies.
- The Department regularly organizes various activities through its MathClub, including short presentations from members of the department, documentaries or movies related to mathematics. Alumni, holding non-academic jobs, are also invited to discuss their experience after graduation, and how the knowledge they acquired while in the Department helps them in their everyday work.
- The Department is maintaining a database with all its graduates, their biographical data and employment history, in order to be responsive and alert about job opportunities and the demands of the job market. Our data basis is continuously updated through the UCY Alumni Office. We are currently in the process of collecting short videos (bio blitz) from alumni presenting their bio in order to create a film that can be presented during departmental events or posted on the department website.
- The department has established summer internships through an optional job placement program, starting from the academic year 2018-19 (see also 1.8.7 above). The duration of a placement is 1-3 months and takes place in the summer term after the second and third year of studies (we give priority to third year students). The aim of the placement is to offer the opportunity to our undergraduate students to: a) experience how their analytical thinking and problem-solving skills can be applied in real world problems; b) experience work environments outside academia; c) establish valuable contacts in industry; d) test potential career directions, enabling them to make an informed choice regarding postgraduate programs. While Cyprus does not have a large manufacturing sector, it does possess a substantial services sector, and this is reflected in the available internships. Available internships include placings in local and international banks (both front office banking positions, as well as data analysis positions), telecommunications companies, the Cyprus Statistical Services, and actuarial as well as audit firms. The feedback from both our students and the employers has been overwhelmingly positive. We strive to both expand the range of available placements, as well as to convince a higher proportion of our students to participate in the program. Once more, our alumni are playing a pivotal role in creating these opportunities for our students, for example by offering positions in their own companies.
- The department is in the process of renewing the agreement that it used to have with the Society of Actuaries (SOA - <https://www.soa.org>). This is a society that traces its roots to the Actuarial Society of America. The goal is that the department could offer a list of courses that are approved by SOA and exempt students, that pass them, from the society's first level courses in mathematics and statistics. This is an opportunity for our undergraduate students that could give them an advantage if they pursue actuarial career.

1.25: The existing teaching methodology is very classic and many courses would benefit from the use of new modes of instruction.

Response:

The subject matter is such that admittedly, 'blackboard and chalk' is the main method of instruction. However, in some existing courses modern technology is utilized (e.g. Banner, Blackboard, webpages) mainly for communicating with the students and making material (including exercises) available to them. In addition, given the current situation with COVID-19, all the courses of the department are now given online (using Microsoft TEAMS) and new methods of instruction (as well as evaluation) have been necessarily implemented. In particular, presentations are being recorded, the class material is available online and students can also be advised or hold recitation sessions online. The department has embraced these new methods and will certainly be utilized on a regular basis. In the Fall of 2020, we also plan on expanding our teaching methods in certain courses, to include (among others) flipped classroom, group exercises and videos.

Provide information on:

1. Employability records

Graduates are generally highly sought after in the domestic market, incl consulting, finance, public agencies, secondary education. A substantial number of graduates pursue advanced degrees domestically or internationally.

2. Pass rate per course/semester

There are high failure rates in the early part of the program. This suggests that a stronger emphasis on pre-session work and program offerings (online or offline) would be beneficial and timely.

3. The correspondence of exams' and assignments' content to the level of the programme and the number of ECTS

While there is some natural variation across courses and topics, there is generally good alignment between exams, the level of the program and the number of ECTS.

Findings

A short description of the situation in the Higher Education Institution (HEI), based on elements from the application for external evaluation and on findings from the onsite visit.

It a classic and strong program, founded by a high level research activities, with a good international standing. While there are many excellent course offerings, the integration of research and education is not uniform.

There is an insufficient integration with related research areas, incl computer science and the applied sciences. A closer connection would benefit the students and increase the opportunities for interdisciplinary research experiences.

Online general information, including course information, is nonuniform and could be improved. High level of student involvement in local governance.

Strengths

A list of strengths, e.g. examples of good practices, achievements, innovative solutions etc.

- Strong research profile of staff.
- New opportunities for training of new faculty, including peer evaluation and mentoring, have been implemented.
- The MathClub brings together alumni and students.
- Use of different forms of assessments in classes.
- Graduates are highly sought after.
- Overall, the processes for quality assurance and course assessment are in line with common practice.
- Strong administrative and IT support for program.

Areas of improvement and recommendations

A list of problem areas to be dealt with, followed by or linked to the recommendations of how to improve the situation.

- Lack of transparency of the outcomes of course assessment and actions taken to resolve concerns.
- Limited opportunities for projects and research experiences in courses.
- Lack of consistency in the use of learning environments.
- Limited alignment with industry and other stakeholders and could be improved.
- Course offerings or course embedding of professional skills and the involvement of an industry advisory board should be considered.
- Limited opportunities for taking classes outside of the particular program.
- There is a need for a longer-term strategic plan to address upcoming retirements and its impact on teaching offerings throughout the program.
- Additional administrative and IT support is needed.

General Remark:

All recommendations have been adopted and implemented but the last two:

- The Strategic Plan of the department will be addressed in the forthcoming (Spring 2021) Departmental Evaluation by ENQA.
- The department is well aware of its needs regarding the administrative and IT personnel, which are always included in our annual proposed budget. However, the budgets are approved, and the allocation of resources is administered by the University and not the departments.

Please select what is appropriate for the following assessment area:

| | |
|-----------------|---|
| Assessment Area | Non-compliant/ Partially Compliant/Compliant |
|-----------------|---|

| | |
|--|-----------|
| Study programme and study programme's design and development | Compliant |
|--|-----------|

2. Teaching, learning and student assessment (ESG 1.3)

| Quality indicators/criteria | | 1 - 5 |
|-----------------------------|--|-------|
| 2. | Teaching, learning and student assessment | |
| 2.1 | The actual/expected number of students in each class allows for constructive teaching and communication. | 5 |
| 2.2 | The actual/expected number of students in each class compares positively to the current international standards and/or practices. | 5 |
| 2.3 | There is an adequate policy for regular and effective communication with students. | 3 |
| 2.4 | The methodology implemented in each course leads to the achievement of the course's purpose and objectives and those of the individual modules. | 4 |
| 2.5 | Constructive formative assessment for learning and feedback are regularly provided to the students. | 2 |
| 2.6 | The assessment system and criteria regarding student course performance are clear, adequate, and known to the students. | 5 |
| 2.7 | Educational activities which encourage students' active participation in the learning process are implemented. | 3 |
| 2.8 | Teaching incorporates the use of modern educational technologies that are consistent with international standards, including a platform for the electronic support of learning. | 3 |
| 2.9 | Teaching materials (books, manuals, journals, databases, and teaching notes) meet the requirements set by the methodology of the programme's individual courses and are updated regularly. | 5 |
| 2.10 | It is ensured that teaching and learning are continuously enriched by research. | 3 |
| 2.11 | The programme promotes students' research skills and inquiry learning. | 3 |
| 2.12 | Students are adequately trained in the research process. | 2 |

Justify the numerical scores provided for the quality indicators (criteria) by specifying (if any) the deficiencies.

2.3: There are some mechanisms in place but there is a lack of consistency and no systematic follow-up on evaluations and associated actions. Assessment of course performance is not communicated consistently.

2.4: While these goals are achieved in many courses, the lack of the systematic use of learning outcomes and their alignment with content is insufficient in other courses.

The learning outcomes have been updated and they now all adhere to the same standards. (see also 1.16)

2.5: There is very limited evidence of use of formative assessment in the majority of courses. Students highlighted that assessment is mainly summative.

Response to 2.3, 2.5:

- We believe that the best learning tool for students in mathematics is through solving problems on their own. This is how they can self-evaluate their progress, identify the gaps in their knowledge and improve in general. All instructors in our department are well aware of this fact and they all assign homework problems to students throughout the semester. These homeworks, although not always counting towards the students' grades, are an integral and invaluable part of their education. The solutions to the homework are presented by the instructors either during class, during office hours or through online platforms. All our students have the opportunity to discuss these solutions and their progress with their instructor. The Department will emphasize this process to students through the syllabi they receive at the beginning of the semester.
- The vast majority of our instructors use the dialectic method in teaching to encourage student participation and learning inside the classroom. The department will emphasize this again to all instructors and we will encourage them to evaluate their teaching methods with the assistance of KEDIMA (The Center of Teaching and Learning of UCY). In particular, the teaching seminars offered by KEDIMA are now obligatory for all new faculty members (and teaching staff).
- In the majority of our departmental courses students have various ways of assessing their performance during the semester. These include one or two midterm exams, graded homework problems and/or a project. There are only a few exceptions, usually in upper level courses, where student evaluation relies on only two criteria. These latter cases will be eliminated starting in the Fall semester of 2020 given the new regulations adopted by the department according to which at least three methods of evaluation must be used for all

fourth-year courses offered to students of the department MAS4XX (including projects, presentations, homework).

- All instructors offer feedback for midterm exams, graded assignments and/or projects either in class (where for example the exam problems are solved) or during office hours. Moreover, each student has the opportunity to review their midterm exam and assignments with their instructor during office hours. The Department has also decided to re-emphasize to all instructors that they must offer solutions to the midterm exam to their students, either in the classroom or online. This is common practice among most of our faculty, however we feel that it should be followed by all instructors.
- According to university regulations final exams must be kept by the Department for one year, and these cannot be returned to students for evaluation. However, each student has the right to review their final in the presence of the instructor within 10 days of the examination and clarify any questions they have regarding mistakes they might have missed and ask for a regrade if they deem it necessary. In the past, there were instances where this rule was not followed due to research related travel obligations of some faculty members. It is the responsibility of the Chairman to enforce that this rule is followed, as will be the case from now on.
- Finally, we would like to comment on the fact that although the audiences, in the majority of the courses offered by the department, range from 50 to 80 students, teaching assistants are not always available. Moreover, even in the cases that teaching assistants are available, by law they are not allowed to grade any tests or projects and can only hold problem-solving sessions.

2.7: The mode of delivery is very traditional in the majority of courses and there is limited evidence of student involvement and the use of active learning modes.

2.8: The use of technology is non-uniform, including the use learning environments. In this aspect, the program does not meet current international standards.

Response 2.7, 2.8:

- Research projects and active learning methods will also be part of the formal assessment of student performance in a series of elective courses. In particular, the Department has decided that the evaluation of all elective courses of the fourth year MAS4XX will be based on at least three different criteria including: the final examination, research projects, presentations and homework. In contrast, university regulations require only two different criteria.
- The subject matter is such that admittedly, 'blackboard and chalk' is the main method of instruction. However, in some existing courses modern technology is utilized (e.g. Banner, Blackboard, webpages) mainly for communicating with the students and making material (including exercises) available to them. In addition, given the current situation with COVID-19, all the courses of the department are now given online (using Microsoft TEAMS) and new methods of instruction (as well as evaluation) have been necessarily implemented. In particular, presentations are being recorded, the class material is available online and

students can also be advised or hold recitation sessions on line. These new methods have been embraced by the department and will certainly be utilized on a regular basis. In the Fall of 2020, we also plan on expanding our teaching methods in certain courses, to include (among others) flipped classroom, group exercises and videos.

2.10: *Such integration is entirely the responsibility of the instructor and there does not appear to be a process in place to promote and ensure this more broadly.*

2.11: *The limited direct integration of research and teaching limits the development of research skills among students.*

2.12: *The very traditional nature of the program and the limited integration of research and teaching does not allow the students to adequately develop research skills.*

Response 2.10 – 2.12:

- We now have in place the ‘three different evaluation criteria rule’, as described above, for student assessment. This will increase the number of faculty involved.
- The final year project, the summer internships and the above rule, will help improve this deficiency.
- The program will be ‘modernized’ as early as this Fall, as explained in our previous responses, and more opportunities will be available to our students for developing research skills.

For details we refer to our related comments to 1.8.6/1.8.7 on page 4.

Findings

A short description of the situation in the Higher Education Institution (HEI), based on elements from the application for external evaluation and on findings from the onsite visit.

While the staff has a strong research foundation and a high level of activity, this is not adequately reflected in the teaching activities and offerings. The program is predominately classic in its choice of topics, modes of delivery and assessment, and it does not, in several aspects, align with current international standards.

The opportunities for active participation of students in the program is limited. The options for students to take courses outside of the program are very limited.

Strengths

A list of strengths, e.g. examples of good practices, achievements, innovative solutions etc.

- Some evidence of the use of alternative modes of assessment, eg presentations.
- The criteria for assessment is clear to students and midterms are generally perceived as being helpful.
- Staff/student ratio allows for some small classes and a more personalized experience for the students.
- Teaching excellence promoted by awards.

Areas of improvement and recommendations

A list of problem areas to be dealt with, followed by or linked to the recommendations of how to improve the situation.

- More consistent use of learning environments across all classes.
- Broader use of continuous and formative assessment as well as alternative assessment techniques, eg presentations and reports.
- Increased effort to integrate research and teaching across the curriculum and, in particular, in the advanced classes.
- Increased access to classes outside the program to promote a broader educational experience for students.
- Diversify modes of delivery and the use of modern modes of teaching pedagogy.
- Steps should be taken to implement the University of Cyprus Charter on Quality Assurance in Teaching.

General Remark:

All recommendations have been adopted and implemented.

Please select what is appropriate for the following assessment area:

| Assessment Area | Non-compliant/ Partially Compliant/Compliant |
|---|---|
| Teaching, learning and student assessment | Partially Compliant |

3. Teaching Staff (ESG 1.5)

| Quality indicators/criteria | | 1 - 5 |
|-----------------------------|--|-------|
| 3. | Teaching Staff | |
| 3.1 | The number of full-time teaching staff, occupied exclusively at the institution, and their fields of expertise, adequately support the programme of study. | 5 |
| 3.2 | The members of teaching staff for each course have the relevant formal and fundamental qualifications for teaching the course, including the following: | |
| 3.2.1 | Subject specialisation | 5 |
| 3.2.2 | Research and publications within the discipline | 5 |
| 3.2.3 | Experience / training in teaching in higher education | 5 |
| 3.3 | The programme attracts visiting professors of recognized academic standing. | 5 |
| 3.4 | The specialisations of visiting professors adequately support the programme of study. | 5 |
| 3.5 | Special teaching staff and special scientists have the necessary qualifications, adequate work experience and specialisation to teach a limited number of courses in the programme of study. | 5 |
| 3.6 | In the programme of study, the ratio of the number of courses taught by full-time staff, occupied exclusively at the institution, to the number of courses taught by part-time staff, ensures the quality of the programme of study. | 5 |
| 3.7 | The ratio of the number of students to the total number of teaching staff supports and safeguards the programme's quality. | 5 |
| 3.8 | The teaching load allows for the conduct of research and contribution to society. | 5 |
| 3.9 | The programme's coordinator has the qualifications and experience to coordinate the programme of study. | 5 |
| 3.10 | The results of the teaching staff's research activity are published in international journals with the peer-reviewing system, in international conferences, conference minutes, publications etc. | 5 |
| 3.11 | The teaching staff is provided with adequate training opportunities in teaching methods, adult education and new technologies. | 5 |
| 3.12 | Feedback processes for teaching staff in regard to the evaluation of their teaching work, by the students, are satisfactory. | 5 |

Justify the numerical scores provided for the quality indicators (criteria) by specifying (if any) the deficiencies.

N/A

Provide information on the following:

In every programme of study the special teaching staff should not exceed 30% of the permanent teaching staff.

No concerns

Findings

A short description of the situation in the Higher Education Institution (HEI), based on elements from the application for external evaluation and on findings from the onsite visit.

Teaching staff members are all research active and have suitable background to deliver the program.

Strengths

A list of strengths, e.g. examples of good practices, achievements, innovative solutions etc.

- Teaching load allows for generous research time.
- Mentorship program is implemented for junior staff members.
- Student feedback of teaching is in place and mechanisms for their resolution is adequate.

Areas of improvement and recommendations

A list of problem areas to be dealt with, followed by or linked to the recommendations of how to improve the situation.

- A substantial staff turnover is expected during the next decade. A strategic plan for how to address this, including the assurance of sufficient breadth and depth in teaching, must be developed.
- A hiring strategy based on 'best in applicant pool' does not adequately address long term planning of both research, teaching, or the diversity of their academic staff.

General Remark:

Both recommendations will be addressed in the forthcoming (Spring 2021) Departmental Evaluation by ENQA.

Please select what is appropriate for the following assessment area:

| Assessment Area | Non-compliant/ Partially Compliant/Compliant |
|-----------------|---|
| Teaching Staff | Compliant |

4. Students

(ESG 1.4, 1.6, 1.7)

| Quality indicators/criteria | | 1 - 5 |
|-----------------------------|--|-------|
| 4. | Students | |
| 4.1 | The student admission requirements for the programme of study are based on specific regulations and suitable criteria that are favourably compared to international practices. | 5 |
| 4.2 | The award of the higher education qualification is accompanied by the diploma supplement which is in line with European and international standards. | 5 |
| 4.3 | The programme's evaluation mechanism, by the students, is effective. | 3 |
| 4.4 | Students' participation in exchange programmes is compared favourably to similar programmes across Europe. | 5 |
| 4.5 | There is a student welfare service that supports students in regard to academic, personal problems and difficulties. | 5 |
| 4.6 | Statutory mechanisms, for the support of students and the communication with the teaching staff, are effective. | 5 |
| 4.7 | Mentoring of each student is provided and the number of students per each permanent teaching member is adequate. | 5 |
| 4.8 | Flexible options / adaptable to the personal needs or to the needs of students with special needs, are provided. | 5 |
| 4.9 | Students are satisfied with their learning | 5 |

Justify the numerical scores provided for the quality indicators (criteria) by specifying (if any) the deficiencies.

4.3: The students have the opportunity to complete teaching evaluations but report that only some staff take this serious. Evaluations are monitored by Department Chair who has individual discussions with staff members. However, there is a serious lack of transparency in this process and any subsequent actions taken, albeit the direct actions that can be taken by the Chair are often limited.

Response:

The Department recognizes that student feedback, through teaching evaluations, is an important tool in improving the overall "teaching performance" of the Department Faculty, regardless of the inherited shortcomings in this type of evaluations.

As a first step, the teaching evaluations will now be made public via the departmental webpage, depicting the scores of the department as a whole (and not of individual instructors).

Moreover, we have decided that each chairperson will make their decision on course assignments, based on the teaching evaluations, wherever possible. For example, consistent bad evaluations on one course would exclude the specific faculty member from teaching the same course for a number of semesters.

We would also like to note that the use of teaching evaluations as a criteria for the evaluation of the general performance of a faculty member (for instance in promotion procedures or allocation of resources) is dictated and regulated by the university law and the university regulations.

Findings

A short description of the situation in the Higher Education Institution (HEI), based on elements from the application for external evaluation and on findings from the onsite visit.

Overall, there are robust systems in place to ensure a fair admission process and support for admitted students.

There are dedicated student and welfare services in place, offering a wide range of expertise.

There are a variety and growing number of international opportunities and alliances that offer attractive opportunities for students.

There is a lack of evidence of feedback to the students on actions taken as an outcome of their evaluations.

Strengths

A list of strengths, e.g. examples of good practices, achievements, innovative solutions etc.

- For students seeking it, there are international opportunities through exchange programs.
- Personalized academic advisor program for all students.
- Strong administrative support across the program for both students and teaching staff.
- Several activities for outreach to high-school students and the involvement in several other activities which contribute to society more broadly.

Areas of improvement and recommendations

A list of problem areas to be dealt with, followed by or linked to the recommendations of how to improve the situation.

- There are some problems with alignment between existing programs and international opportunities that present challenges for some students.
- Strengthen the feedback to students on actions taken in response to their evaluations.

Please select what is appropriate for the following assessment area:

| Assessment Area | Non-compliant/ Partially Compliant/Compliant |
|-----------------|---|
| Students | Compliant |

5. Resources

(ESG 1.6)

| Quality indicators/criteria | | 1 - 5 |
|-----------------------------|--|-------|
| 5. | Resources | |
| 5.1 | Adequate and modern learning resources are available to the students. | 5 |
| 5.2 | The library includes the latest books and material that support the programme. | 5 |
| 5.3 | The library loan system facilitates students' studies. | 5 |
| 5.4 | The laboratories adequately support the programme. | 5 |
| 5.5 | Student welfare services are of high quality. | 5 |
| 5.6 | Statutory administrative mechanisms for monitoring and supporting students are sufficient. | 5 |
| 5.7 | Suitable books and reputable journals support the programme of study. | 5 |
| 5.8 | An internal communication platform supports the programme of study. | 3 |
| 5.9 | The equipment used in teaching and learning (laboratory and electronic equipment, consumables etc.) are quantitatively and qualitatively adequate. | 5 |
| 5.10 | Teaching materials (books, manuals, scientific journals, databases) are adequate and accessible to students. | 5 |
| 5.11 | Teaching materials (books, manuals, scientific journals, databases) are updated regularly with the most recent publications. | 5 |

Justify the numerical scores provided for the quality indicators (criteria) by specifying (if any) the deficiencies.

5.8: Inconsistent and inadequate use of a learning platform for internal communication across the program.

Response:

Starting in the Fall of 2020, all courses will be required to have an online 'presence'. Either through Blackboard/Teams or through a dedicated Course Webpage. Each instructor will communicate with students in this way, and will be posting any course material that she/he wants to make available to students. This initiative is in line with the idea of a 'Green University', since no print-outs will be given to the students, unless absolutely necessary.

Findings

A short description of the situation in the Higher Education Institution (HEI), based on elements from the application for external evaluation and on findings from the onsite visit.

Resources are updated and broadly available.

Library resources and facilities are outstanding.

Strengths

A list of strengths, e.g. examples of good practices, achievements, innovative solutions etc.

- Resources for teaching and learning are generous and available.
- Library is exceptional and provides a very nice learning environment.

Areas of improvement and recommendations

A list of problem areas to be dealt with, followed by or linked to the recommendations of how to improve the situation.

- A need for improved communication with students, possibly through a more integrated use of a learning platform.

Please select what is appropriate for the following assessment area:

| Assessment Area | Non-compliant/ Partially Compliant/Compliant |
|-----------------|---|
| Resources | Compliant |

6. Additional for distance learning programmes
(ALL ESG)

7. Additional for doctoral programmes
(ALL ESG)

8. Additional for joint programmes
(ALL ESG)

B. Conclusions and final remarks

Please provide constructive conclusions and final remarks which may form the basis upon which improvements of the quality of the programme of study under review may be achieved, with emphasis on the correspondence with the EQF.

The existing program has a history of attracting excellent students and offers a degree with excellent employment opportunities after graduation. There is a strong research culture among the staff and the department has been successful in recent hiring of strong junior staff members.

Overall, students express satisfaction with the program and the course offerings but do request more uniformity in areas of assessment and communication, and an interest in taking classes outside the program.

The governance of the department and the program is inclusive and offers opportunities for both teaching staff and students to be involved in decision making. The resources available to researchers and students are generally very good and the library offers an excellent learning environment.

There is a clear need to modernize teaching and teaching methodologies, including a much stronger integration of research and teaching and the development of opportunities for students to take classes in related disciplines.

Modes of assessment are generally very classic and more emphasis should be placed on the broader use of alternative assessment techniques, e.g. projects or presentations, and the direct integration of research experiences in the classes across the curriculum at all stages.

There is a need for improved uniformity in the use of digital learning environments and increased transparency in the actions taken as a consequence of student evaluations and concerns.

Currently, the program appears to be somewhat insular, both locally and internationally, and could benefit from a more direct interaction with local industry and other stakeholders.

The age profile of the current teaching staff suggests an urgent need for the development of strategic succession planning to maintain sufficient depth and breadth across the scientific staff to continue to offer a high quality program.

FINAL REMARKS :

We believe that the true measure of the efficacy of an academic programme is the quality of its graduates. This is reflected through their employability as well as the way they are perceived by other academic institutions.

In the last two decades, hundreds of our students have been accepted for post-graduate studies in a host of European and American universities not only in Mathematics and Statistics but also in fields such as Economics, Finance Engineering and Computer Science. Our top graduates often pursue their studies at highly-ranked universities such as the University of Oxford, the London School of Economics, Imperial College, the University of Warwick, the Max Planck Institute, the University of Bonn, the University of Munich, Brown University, UCLA, the University of Pennsylvania, the University of Michigan –Ann Arbor, Penn State University, the University of Wisconsin-Madison, UNC-Chapel Hill, the University of California-Irvine, the University of Maryland, the University of Southern California, Purdue University, Chalmers University of Technology-Sweden. In addition,

more than 20 of our graduates hold faculty positions in universities in Cyprus and abroad. This, we believe, indicates the high quality of our students.

Furthermore, most of our graduates follow successful careers in the private sector (Consulting and forex companies, Financial institutions, Insurance companies, Information technology companies) as well as the public sector (Governmental agencies, Secondary Education). Our programme is highly respected by the various employers in Cyprus and our graduates are often preferred over other candidates.

However, to keep up with the very competitive international employment environment, we continuously strive to improve our programme. The evaluation by ENQA presented us with an excellent opportunity to identify our programme's shortcomings and to find possible ways of raising our standards. In this respect we would like to thank the members of the evaluation committee for their constructive criticism. We have made an honest effort to implement their recommendations.

C. Higher Education Institution academic representatives

| Name | Position | Signature |
|---------------------------|---|-----------|
| Theofanis Sapatinas | Professor, Chairman and Member - Undergraduate Studies Committee | |
| Emmanouil Milakis | Associate Professor, Vice-Chairman | |
| Georgios Kyriazis | Professor, Programme Coordinator | |
| Christodoulos Sophocleous | Professor, Coordinator - Undergraduate Studies Committee | |
| Evis Ieronymou | Assistant Professor, Member - Undergraduate Studies Committee | |

Date: 24/4/2020